

REMARKS

In the Office Action, claims 1-3 and 7-9 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1 and 7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (US 6337120) in view of Inoue (JP 2001-332275).

The following amendments were made to Claims 2, 3, 8 and 9:

- 1) The words “made of a mixture of carbon powder and a resin” are revised to --made of a mixture of a carbon powder and a thermosetting resin--. This revision is supported by paragraph [0054] in US 2006/0269818 A1.
- 2) The words “a high viscosity type rubber material” are revised to --a rubber material selected from an EPDM and a fluorine compound rubber--. This revision is supported by paragraph [0010].
- 3) In view of the case of produce by process, the words “by high pressure injection molding of” are revised to --by attaching--. This revision is supported by paragraph [0013].
- 4) In Claims 2 and 8, the words “formed in an inclined shape” are revised to --inclined downwardly to central parts of said grooves to form an inclined shape--. This revision is supported by paragraph [0014], and Figures 4 and 10.

Claims 2, 3, 8 and 9 are not disclosed or suggested in Chow et al., the Sasaki patent, and the Ishigaki patent documents.

A separator 1 for a fuel battery in accordance with the present invention comprises a separator main body 2 made of a mixture of a carbon powder and a thermosetting resin, and a gasket 3 made of a rubber material selected from an EPDM and a fluorine compound rubber and provided with lip portions 6, 8 on upper and lower surfaces. The gasket 3 is integrally formed in both surfaces 2a, 2b of the separator main body 2 by a high pressure injection molding process of the rubber material into the gasket forming grooves 10, 11. However, since the separator main body 2 is fragile, bottom walls of the gasket forming grooves 10, 11 are likely to be punched out when the rubber is formed on the separator main body 2 by the high pressure injection molding process. In order to prevent such damage of the separator main body 2, the present invention applies the following measures to the separator main body 2.

In Claims 2 and 3, the gasket forming grooves 10, 11 are provided with through holes 4 to communicate the grooves 10, 11 with each other. In Claim 2, at least one of the groove side surfaces 16, 17 in the gasket forming grooves 10, 11 is inclined downwardly to central parts of the grooves to form an inclined shape. In claim 3, a curvature is provided in corner portions 14 of at least one groove bottom surfaces in the gasket forming grooves 10, 11.

In claims 8 and 9, the gasket forming grooves 10, 11 are not provided with the through-holes. The other constructions in Claims 8 and 9 are the same as those in Claims 2 and 3.

Chow et al. discloses a gasket apparatus including sheets 44, 50 provided with inclined grooves 60, 61, and gaskets 62, 63 fitted in the grooves 60, 61. However, the gaskets 62, 63 are previously formed independently of the sheets 44, 50. The gaskets 62, 63 are not formed integrally on the sheets 44, 50 by an injection molding process.

Furthermore, the inclined grooves 60, 61 are provided in order to prevent the gaskets 62, 63 from being shifted in and separated from the grooves 60, 61. The inclined grooves 60, 61 are not provided in order to prevent the bottom walls of the sheets 44, 50 from being punched out by the injection molding process.

The Sasaki patent discloses the gaskets 7, 8 integrally formed in the grooves 40a, 40b provided on the upper and lower surfaces of the porous sheet 40. However, the side surfaces of the grooves 40a, 40b are not formed into the included shape. Also, the grooves 40a, 40b are not provided on the corner portions with curvature. Since the gaskets 7, 8 are made of a liquid rubber, there is no problem that the bottom walls of the grooves 40a, 40b are punched out by the high pressure injection molding process.

The Ishigaki patent discloses a low load seal including a seal attaching member 2 provided with curved corners in a groove 3, and a seal 1 fitted in the groove 3. However, the seal 1 is previously formed independently of the seal attaching member 2. The seal 1 is not formed integrally on the seal attaching

member 2 by the injection process. The groove 3 is not provided on the upper and lower surfaces of the seal attaching member 2. The side surfaces of the groove 3 are not included downward to the central part of the groove 3. Since the seal 1 and attaching member 2 are formed independently of each other, there is no problem that the bottom wall of the groove 3 is punched out by the high pressure injection molding process.

Based on the foregoing amendments and remarks, it is respectfully submitted that the claims in the present application, as they now stand, patentably distinguish over the references cited and applied by the Examiner and are, therefore, in condition for allowance. A Notice of Allowance is in order, and such favorable action and reconsideration are respectfully requested.

However, if after reviewing the above amendments and remarks, the Examiner has any questions or comments, he is cordially invited to contact the undersigned attorneys.

Respectfully submitted,

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